

May 30, 2024

## DEFECT INFORMATION REPORT

1. Vehicle Manufacturer Name:

Toyota Motor Corporation ["TMC"]  
1, Toyota-cho, Toyota-city, Aichi-pref., 471-8571, Japan

Toyota Motor Manufacturing, Texas, Inc. ["TMMTX"]  
1 Lone Star Pass, San Antonio, TX 78264

Affiliated U.S. Sales Company:

Toyota Motor North America, Inc. ["TMNA"]  
6565 Headquarters Drive, Plano, TX 75024

Manufacturer of Engine assembly:

Toyota Motor Corporation Tahara Plant  
3-1 Midorigahama, Tahara, Aichi 441-3401, Japan  
Phone: +81-531-22-6161

Country of Origin: Japan

Toyota Motor Manufacturing, Alabama, Inc. ["TMMAL"]  
1 Cottonvalley Drive NW, Huntsville, Alabama 35810  
Phone: 256-746-5000

Country of Origin: U.S.A.

2. Identification of Involved Vehicles and Affected Components:

Based on production records, we have determined the involved vehicle population to be the vehicles listed in the table below.

Make/Car Line	Model Year	Manufacturer	Production Period
Toyota / Tundra	2022-2023	TMMTX	November 2, 2021 through February 13, 2023
Lexus / LX600	2022-2023	TMC	July 30, 2021 through November 25, 2022

Applicability	Part Number	Part Name	Component Description
MY2022-2023 Toyota Tundra	19000-F4020 19000-F4030	ENGINE ASSY, PARTIAL	Engine Assembly
MY2022-2023 Lexus LX600	19000-70550 19000-7U280		

- Note: (1) Although the involved vehicles are within the above production period range, not all vehicles in this range were sold in the U.S.
- (2) This recall covers vehicles equipped with V35A engines of a particular configuration that were manufactured during a certain period at particular engine plants. V35A engines of this configuration, manufactured after this production period, were manufactured with new or improved processes that better clear machining debris. Other Toyota or Lexus vehicles sold in the U.S. are not equipped with this engine or have a different V35A engine configuration with different pressure on the main bearings. Some of these vehicles equipped with a different engine configuration have a Hybrid powertrain system. If engine failure occurs on a Hybrid vehicle, the vehicle continues to have some motive power for limited distances and the driver receives a continuous audible warning, warning lamps, and visual warning messages.

3. Total Number of Vehicles Potentially Involved:

Toyota Tundra : 98,568  
 Lexus LX600 : 3,524  
 Total : 102,092

4. Percentage of Vehicles Estimated to Actually Contain the Defect:

Toyota is unable to estimate the percentage of the involved vehicles to actually contain the defect described in Section 5. However, as the NHTSA manufacturer portal requires an integer value be entered, Toyota has entered the value “1” in response to this question in the portal. For the purpose of this report, “1” means “unknown”.

5. Description of Problem:

The subject vehicles are equipped with a specific V35A engine that contains crankshaft main bearings which allow the crankshaft to rotate within the engine assembly while running. During a specific production period, there is a possibility that engine machining debris of a particular size and amount may not have been cleared from the engine during manufacturing and subsequently contaminated the engine assembly during the production process. For these engines in the subject vehicles, the pressure on the main bearings due to the engine configuration is such that, if the aforementioned machining debris adheres to the bearings and operation of the engine continues at higher loads over time, failure of the bearings may occur. This can lead to potential engine knocking, engine rough running, engine no start and/or an engine stall. In the subject vehicles, an engine stall while driving leads to a loss of motive power. A vehicle loss of motive power while driving at higher speeds can increase the risk of a crash.

6. Chronology of Principal Events:

March 2022 – December 2022

In early March 2022, Toyota received a field report that indicated a vehicle equipped with a V35A engine stalled. Toyota recovered the involved parts and performed an investigation of the engine failure. Through this investigation, it was found that the crankshaft main bearings had seized.

In late July 2022, a Toyota field report and a dealer report were received that alleged the failure of two different V35A engines with damaged bearings. Toyota recovered the involved parts and performed an investigation of the engine failures. Through this investigation, it was found that the crankshaft main bearings had been damaged, but due to the nature of the failures, Toyota could not determine the cause of the damage. Toyota hypothesized that debris could be present from the engine machining process. To reduce the possibility of engine contamination during manufacturing, Toyota implemented cleanliness process changes at its engine manufacturing plants.

### January 2023 – August 2023

After cleanliness process changes were implemented, Toyota continued to monitor the market for any increase in trend related to the issue. During this time, Toyota also recovered V35A parts alleged to contain engine contamination to confirm the adequacy of the manufacturing process changes.

### September 2023 – January 2024

Toyota observed an increase in dealer and Toyota field reports related to engine failure involving debris.

In mid-October, Toyota began an investigation into the design validation process of the V35A engine and the installation validation process of the engine manufacturing equipment. It also continued to assess the effectiveness of manufacturing process changes implemented earlier.

Toyota also continued to recover V35A engines from the field. Toyota used these engines to inspect the oil filters and engine parts for debris. Toyota also used these engines to study the effect of debris in the engine over time.

As part of its investigation into the design validation process of the V35A engine, in November 2023, Toyota began analyzing the bearing durability studies that were performed during the development of the V35A engine.

In January 2024, the Alabama engine manufacturing plant was requested to provide all quality testing swatches used to capture debris samples at specified intervals dating back to the beginning of production of the V35A engine for analysis. These samples represented the size and amount of debris present for production periods, or lots, of engines.

In January 2024, Toyota presented the status of the ongoing investigation items to NHTSA.

### February 2024 – May 2024

As a part of its investigation into recovered parts from V35A engines, in February 2024, Toyota began collecting and tearing down good engines recovered from the field. Toyota used these engines to analyze the oil for metal content and to perform an inspection of the oil passages. Toyota noted that certain recovered engines showed some levels of bearing degradation or damage but had not shown signs of failure. These bearings were sent to Toyota's engine design teams in Japan for further analysis.

The bearing durability studies were completed in March 2024. From these studies, maximum operation stress during driving, stress limits of each bearing, and size of debris that each bearing

was designed to withstand under normal loading were identified.

In early March 2024, Toyota began scanning the testing swatch samples which were collected from the Alabama engine manufacturing plant for further analysis.

In late March 2024, Toyota presented an update of the status of the ongoing investigation items to NHTSA.

In early May 2024, the analysis that was being performed on bearings recovered from good V35A engines was completed. The results showed that the damage that was seen on the bearings was from debris created during the engine machining process, and that there were sufficient debris sizes and amounts present to cause a bearing to fail.

Toyota also finished its scanning and analysis of testing swatch samples from the Alabama manufacturing plant. A statistical study was applied to the data to create probability models.

Based on the results of the above investigation, Toyota determined that during a specific production period, there is a possibility that engine machining debris of a particular size and amount may not have been cleared from the engine during manufacturing and subsequently contaminated the engine assembly during the production process. For these engines in the subject vehicles, if the aforementioned machining debris adheres to the bearings and operation of the engine continues at higher loads over time, failure of the bearings may occur. This can lead to potential engine knocking, engine rough running, engine no start and/or an engine stall. In the subject vehicles, an engine stall while driving leads to a loss of motive power. A vehicle loss of motive power while driving at higher speeds can increase the risk of a crash.

May 23, 2024

Toyota decided to conduct a voluntary safety recall campaign.

As of May 20, 2024, based on a diligent review of records, Toyota's best engineering judgement is that there are 166 Toyota Field Technical Reports and 824 warranty claims on the engines in the subject vehicles that have been received from U.S. sources that relate or may relate to this condition and which were considered in the decision to submit this report.

7. Description of Corrective Repair Action:

All known owners of the subject vehicles will be informed that remedy is under investigation and that they will be contacted when further information is available.

Reimbursement Plan for pre-notification remedies

As the owner notification letters will be mailed out well within the active period of the Toyota or Lexus New Vehicle Limited Warranty (“Warranty”), all involved vehicle owners for this recall would have been provided a repair at no cost under Toyota’s Warranty. The owner letter will instruct vehicle owners who have paid to have this condition remedied prior to this campaign to seek reimbursement pursuant to Toyota’s General Reimbursement Plan.

8. Recall Schedule:

Notifications to owners of the affected vehicles will occur by July 29, 2024. A copy of the draft owner notification will be submitted as soon as it is available.

9. Distributor/Dealer Notification Schedule:

Notifications to distributors/dealers will be sent on May 30, 2024. Copies of dealer communications will be submitted as they are issued.

10. Manufacturer’s Campaign Number:

Toyota [Interim / Remedy] 24TB07 / 24TA07  
Lexus [Interim / Remedy] 24LB04 / 24LA04